PRIVILEGED AND CONFIDENTIAL ATTORNEY-CLIENT COMMUNICATION

APEX COMPANIES, LLC

Air Emissions Test Protocol
Coater Air Emissions Testing
at
Alco Products, LLC
Detroit, Michigan

PREPARED FOR:
Alco Products, LLC
580 Old St Jean Street
Detroit, Michigan 48214

Apex Project No. 22012961

December 29, 2022

Apex Companies, LLC
46555 Humboldt Drive, Suite 103
Novi, Michigan 48377

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1.0 Introduction

Alco retained Apex Companies, LLC to test air emissions from several sources at the Alco Products, LLC facility in Detroit, Michigan. The emission sources to be tested are:

- Line 1 Coater
- Line 2 Coater
- Black Mag Silo
- Sand Silo

The purpose of this testing is to satisfy testing requirements in a United States Environmental Protection Agency (USEPA) information request under Section 114(a) of the Clean Air Act (CAA), 42 U.S.C. Section 7414(a). The information request is dated October 26, 2022, and was received by Alco on October 31, 2022. This Emissions Test Protocol outlines the test program.

2.0 Test Program Organization

Table 2-1 presents the emissions test program organization, major lines of communication, and names and telephone numbers of responsible individuals.

Table 2-1
Key Contact Information

Client	Apex
David Martin General Manager/Controller Alco Products, LLC 580 Old St Jean Street Detroit, Michigan 48214 dmartin@alco-products.com	David Kawasaki, QSTI Senior Engineer Apex Companies, LLC 46555 Humboldt Drive, Suite 103 Novi, Michigan 48377 david.kawasaki@apexcos.com
USEPA	
Brittany Cobb Environmental Engineer USEPA Region 5 77 West Jackson Boulevard Chicago, Illinois 60604 cobb.brittany@epa.gov	Natalia Vazquez Environmental Engineer USEPA Region 3 1650 Arch Street Philadelphia, Pennsylvania 19103 vazquez.natalia@epa.gov

3.0 Source Description

3.1 Process Description

The Alco Products, LLC facility at 580 Old St Jean Street in Detroit, Michigan manufactures self-adhered building products (primarily ice and water shield roofing products and anti fracture flooring membranes). The facility operates two lines that manufacture self-adhered, rolled products that a user can "peel-and-stick". Line 1, or the "New Line," is approximately 160 feet long. Line 2, or the "Old Line," is approximately 80 feet long. The lines use two materials as carrier sheets, or scrim: fiberglass for roofing materials and polyester for flooring materials.

On Line 1, the scrim (fiberglass) passes through a dual coater, where a top coating application is applied in the first coater and then a self-adhering bottom coating is applied in the second coater. The Coater operates at a temperature of approximately 300°F. After the coating process, a granular surface is applied (sand or black mag) to the top of the product and a release film to the bottom for the required physical properties. The product is generally cured after the granular application with additional cooling applied with chilled drums and ambient air before being rolled and packaged. Line 1 typically operates at approximately 150 to 160 linear feet per minute. The maximum line speed is approximately 190 linear feet per minute.

On Line 2, the scrim passes through a single coating process, either through coated (simultaneous top and bottom application) or bottom application only. The coater typically operates at a temperature of 275 to 300°F. After passing through the coater, the release film is applied and in some products a surface facer (film or polyester) is applied to the top. The product is cooled with chilled drums and ambient air. Line 2 operates at approximately 50 to 75 linear feet per minute depending on the product. Maximum line speed is approximately 120 linear feet per minute. Line 2 does not use any granular surfacing in the production process.

The facility operates two granular silos for black mag and sand storage. Raw material is delivered to the facility from a vendor and is transferred from the delivery truck to the silos through pneumatic air pressure on an enclosed basis. Both granular silos supply Line 1 production activities.

4.0 Test Program

4.1 Objectives

The objective of the testing is to measure air emissions from certain sources as identified in the USEPA information request.

4.2 Test Matrix

Table 4-1 presents the sampling and analytical test matrix.

Table 4-1
Test Matrix

Source	Sample/Type of Pollutant	Sampling Method	No. of Test Runs and Duration	Analytical Method
Line 1 Coater	Flowrate, molecular weight, moisture content, particulate matter, temporary total enclosure, polycyclic aromatic hydrocarbon	USEPA 1, 2, 3, 4, 5A, 204, CARB 429	Three 150-minute runs	Pitot tube, chemical absorption analyzer, gravimetric, gas chromatography, mass spectrometry
Line 2 Coater	Flowrate, molecular weight, moisture content, particulate matter, temporary total enclosure, polycyclic aromatic hydrocarbon	USEPA 1, 2, 3, 4, 5A, 204, CARB 429	Three 150-minute runs	Pitot tube, chemical absorption analyzer, gravimetric, gas chromatography, mass spectrometry
Black Mag Silo	Visible emissions	USEPA 9	Three 30-minute runs	Visible observation
Sand Silo	Visible emissions	USEPA 9	Three 30-minute runs	Visible observation

5.0 Sampling Locations

5.1 Flue Gas Sampling Locations

United States Environmental Protection Agency (USEPA) Test Method 1 describes the sampling ports location requirements in comparison to their physical layout (refer to Figure 5-1). The exhaust stacks will be equipped with sampling locations that meet the minimum USEPA Test Method 1 requirements.

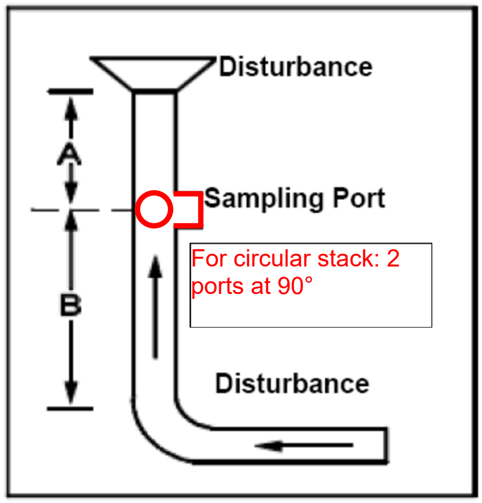


Figure 5-1. USEPA Method 1 Sampling Location Requirements

Where:

A = upstream distance from disturbance to sampling port (minimum ½ duct diameter)

B = downstream distance from disturbance to sampling port (minimum 2 duct diameters)

5.2 Process Sampling Locations

Process sampling is not required during this test program. A process sample is a sample that is analyzed for operational parameters, such as calorific value of a fuel (e.g., natural gas, coal), organic compound content (e.g., paint coatings), or composition (e.g., polymers).

6.0 Sampling and Analytical Procedures

6.1 Test Methods

Apex proposes to use the sampling methods and procedures listed in Table 6-1.

Table 6-1
Emission Testing Methods

Parameter	Line 1 and Line 2 Coaters	Black Mag Silo, Sand Silo	USEPA Reference	
			Method	Title
Sampling ports and traverse points	•		1	Sample and Velocity Traverses for Stationary Sources
Velocity and flowrate	•		2	Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)
Molecular weight	•		3	Gas Analysis for the Determination of Dry Molecular Weight
Moisture content	•		4	Determination of Moisture Content in Stack Gases
Particulate matter (PM)	•		5A	Determination of Particulate Matter Emissions from the Asphalt Processing and Asphalt Roofing Industry
Visual emissions (VE)		•	9	Visual Determination of the Opacity of Emissions from Stationary Sources
Temporary Total Enclosure (TTE)	•		204	Criteria for and Verification of a Permanent or Temporary Total Enclosure
Polycyclic Aromatic Hydrocarbon (PAH)	•		CARB 429†	Determination of Polycyclic Aromatic Hydrocarbon (PAH) Emissions from Stationary Sources

† California Air Resources Board (CARB) Method 429 will be used for PAH emissions in lieu of USEPA's requested Methods 23 and SW-846 8270D. CARB 429 is recommended by the analytical laboratory and provides lower detection limits than Method 23 and 8270D.

6.1.1 Volumetric Flowrate (USEPA Methods 1 and 2)

USEPA Method 1, "Sample and Velocity Traverses for Stationary Sources," will be used to evaluate the sampling locations and the number of traverse points for sampling and the measurement of velocity profiles.

USEPA Method 2, "Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)," will be used to measure flue gas velocity and calculate volumetric flowrates. S-type Pitot tubes and thermocouple assemblies, calibrated in accordance with Method 2, Section 10.0, will be used during testing. Because the dimensions of the Pitot tubes meet the requirements outlined in Method 2, Section 10.1, and are within the specified limits, the baseline Pitot tube coefficient of 0.84 (dimensionless) will be assigned. Pitot tube inspection sheets will be included in the test report.

Cyclonic Flow Check. Apex will evaluate whether cyclonic flow is present at the sampling locations. Cyclonic flow is defined as a flow condition with an average null angle greater than 20°. The direction of flow can be determined by aligning the Pitot tube to obtain zero (null) velocity head reading—the direction would be parallel to the Pitot tube face openings or perpendicular to the null position. By measuring the angle of the Pitot tube face openings in relation to the stack walls when a null angle is obtained, the direction of flow is measured. If the absolute average of the flow direction angles is greater than 20°, the flue gas is considered to be cyclonic at that sampling location and an alternative location should be selected.

6.1.2 Molecular Weight (USEPA Method 3)

USEPA Method 3, "Gas Analysis for the Determination of Dry Molecular Weight," will be used to determine the molecular weight of the flue gas. Flue gas will be extracted from the stack through a probe and directed into a Fyrite® gas analyzer. The concentrations of carbon dioxide (CO_2) and oxygen (O_2) will be measured by chemical absorption to within ±0.5%. The average CO_2 and O_2 results of the grab samples will be used to calculate molecular weight.

6.1.3 Moisture Content (USEPA Method 4)

USEPA Method 4, "Determination of Moisture Content in Stack Gases" will be used to determine the moisture content of the flue gas. Prior to testing, the moisture content will be estimated using measurements from previous testing, psychrometric charts and/or water saturation vapor pressure tables. These data will be used in conjunction with preliminary velocity head pressure and temperature data to calculate flue gas velocity, nozzle size, and to establish the isokinetic sampling rate for the Methods 5A and 429 sampling. For each sampling run, moisture content of the flue gases will be measured using the reference method outlined in Section 2 of USEPA Method 4 in conjunction with the performance of Methods 5A and 429.

6.1.4 Filterable Particulate Matter (USEPA Method 5A)

USEPA Method 5A, "Determination of Particulate Matter Emissions from the Asphalt Processing and Asphalt Roofing Industry," will be used to measure particulate matter emissions. Apex's modular isokinetic stack sampling system consists of the following:

- A stainless steel or glass button-hook nozzle.
- A heated (108±18°F) stainless steel or glass-lined probe.
- A desiccated and pre-weighed 83-millimeter-diameter glass fiber filter (manufactured to at least 99.95% efficiency (<0.05 % penetration) for 0.3-micron dioctyl phthalate smoke particles) in a heated (108±18°F) filter box.
- A set of four impingers with the configuration shown in Table 6-2.

Table 6-2
USEPA Method 5A Impinger Configuration

Impinger Order (Upstream to Downstream)	Impinger Type	Impinger Contents	Contents
1	Modified	Water	~100 grams
2	Greenburg Smith	Water	~100 grams
3	Modified	Empty	0 grams
4	Modified	Silica desiccant	~300 grams

- A sampling line.
- An Environmental Supply® control case equipped with a pump, dry-gas meter, and calibrated orifice.

Figure 6-1 depicts the USEPA Method 5A sampling train.

Prior to testing, a preliminary velocity traverse will be performed and a nozzle size will be calculated that would allow isokinetic sampling at an average rate of approximately 0.75 cubic feet per minute (cfm). Apex will select a pre-cleaned nozzle that has an inner diameter that approximates the calculated ideal value. The nozzle will be inspected and measured with calipers across three cross-sectional chords to evaluate the inside diameter; rinsed and brushed with trichloroethylene; and connected to the sample probe.

The impact and static pressure openings of the Pitot tube will be leak-checked at or above a velocity head of 3.0 inches of water for more than 15 seconds. The sampling train will be leak-checked by capping the nozzle tip and applying a vacuum of approximately 5 inches of mercury to the sampling train. The dry-gas meter will then be monitored to measure that the sample train leak rate is less than 0.02 cubic feet per minute (cfm). The probe and filter heaters will be turned on, and the sample probe will be inserted into the sampling port to begin sampling.

Ice will be placed around the impingers, and the probe and filter temperatures will be allowed to stabilize at 108±18°F before each sample run. After the desired operating conditions are coordinated with the facility, testing will be initiated.

Stack parameters (e.g., flue velocity, temperature) will be monitored to establish the isokinetic sampling rate within 100±10% for the duration of the test. Data will be recorded at each of the traverse points.

At the conclusion of a test run and the post-test leak check, the sampling train will be disassembled, and the impingers and filter will be transported to the recovery area. The filter will be recovered using tweezers and placed in a Petri dish. The Petri dish will be immediately labeled and sealed with Teflon tape. The nozzle, probe, and the front half of the filter holder assembly will be brushed and, at a minimum, triple-rinsed with trichloroethylene to recover particulate matter. The trichloroethylene rinses will be collected in pre-cleaned sample containers.

At the end of a test run, the mass of liquid collected in each impinger will be measured using a scale to within ±0.5 grams; these masses will be used to calculate the moisture content of the flue gas. The contents of the impinger train will be discarded after the mass is measured.

Apex will label each container with the test number, test location, and test date, and mark the level of liquid on the outside of the container. Immediately after recovery, the sample containers will be stored. The sample containers will be transported to Enthalpy Analytical in Durham, North Carolina for analysis. The laboratory analytical results will be included in the final report.

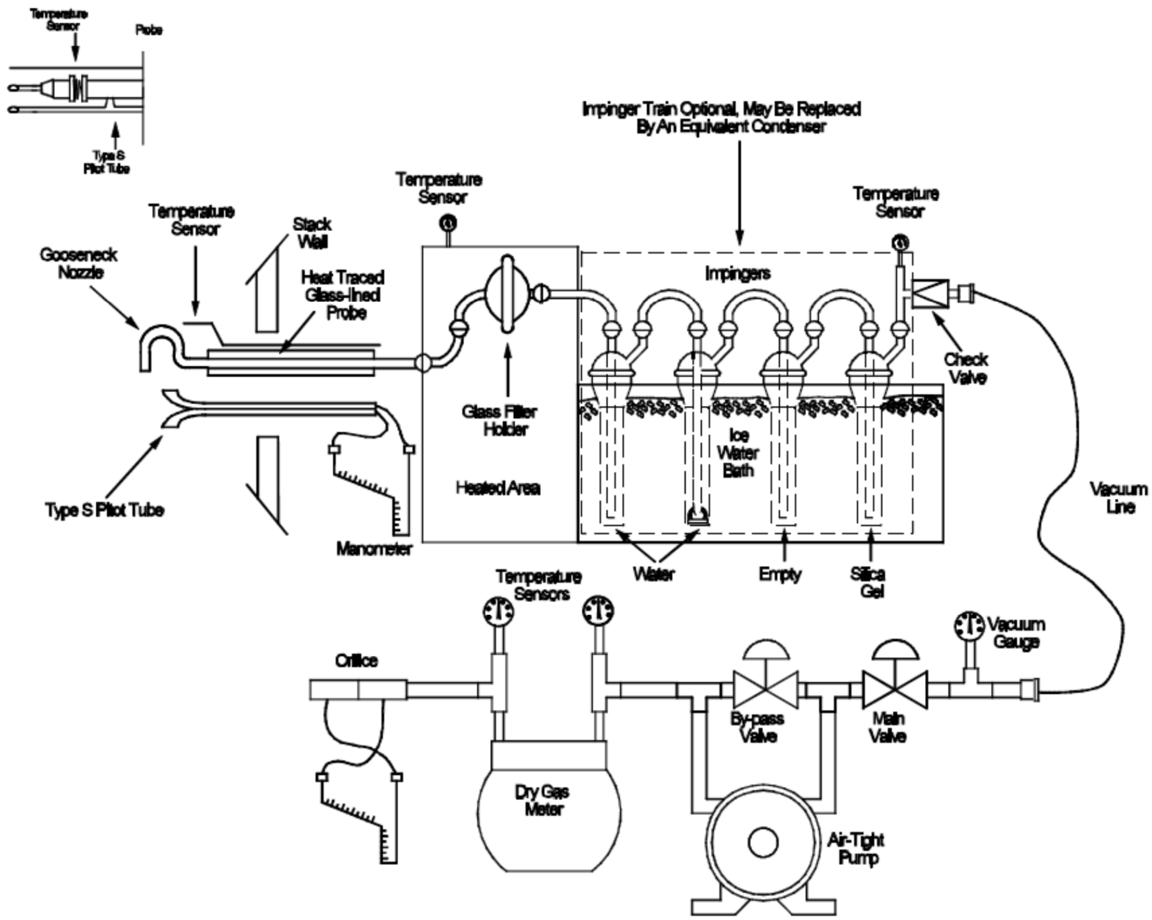


Figure 6-1. USEPA Method 5A Sampling Train

6.1.5 Polycyclic Aromatic Hydrocarbons (CARB Method 429)

CARB Method 429, "Determination of Polycyclic Aromatic Hydrocarbon (PAH) Emissions from Stationary Sources" will be used to evaluate PAH.

Apex's modular isokinetic stack sampling system consists of:

- A borosilicate glass button-hook nozzle.
- A heated (248±25°F) borosilicate glass-lined probe.
- A pre-cleaned glass fiber filter (manufactured to at least 99.95% efficiency (<0.05 % penetration) for 0.3-micron dioctyl phthalate smoke particles) in a heated (248±25°F) filter box.
- A glass recirculating ice water condenser system.
- A XAD-2 sorbent trap.
- A set of four pre-cleaned impingers with the configuration shown in Table 6-3.

Table 6-3
CARB Method 429 Impinger Configuration

Impinger Order (Upstream to Downstream)	Impinger Type	Impinger Contents	Contents
1	Knockout	3 mM $NaHCO_3$ 2.4 mM Na_2CO_3	100 ml
2	Modified	3 mM $NaHCO_3$ 2.4 mM Na_2CO_3	100 ml
3	Modified	Empty	0 ml
4	Modified	Silica gel desiccant	~300 grams

- A sampling line.
- An Environmental Supply® control case equipped with a pump, dry-gas meter, and calibrated orifice.

A depiction of the CARB Method 429 sampling train is provided in Figure 6-2.

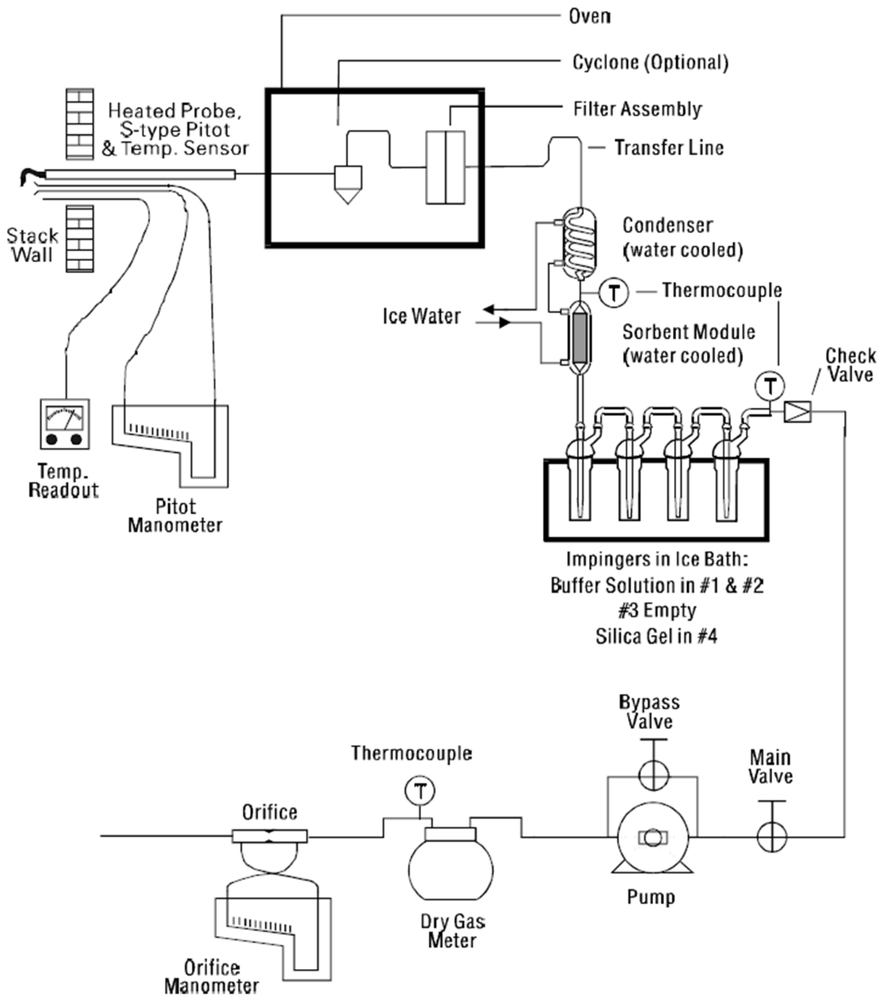


Figure 6-2. CARB Method 429 Sampling Train

Before testing, a preliminary velocity traverse will be performed and a nozzle size will be calculated that will allow isokinetic sampling at an average rate of 0.75 cfm. Apex will select a pre-cleaned borosilicate glass nozzle that has an inner diameter that approximates the calculated ideal value. The nozzle diameter will be measured with calipers across three cross-sectional chords to evaluate the inside diameter; rinsed and brushed with acetone, hexane, and methylene chloride; and connected to the borosilicate glass-lined sample probe.

The impact and static pressure openings of the Pitot tube will be leak-checked at or above a velocity head of 3.0 inches of water for more than 15 seconds. The sampling train will be leak-checked by capping the nozzle tip and applying a vacuum of approximately 5 inches of mercury to the sampling train. The dry-gas meter will be monitored to measure that the sample train leakage rate is less than 0.02 cfm. The sampling probe will be inserted into the sampling port to begin sampling.

Ice will be placed around the impingers and the probe, and filter temperatures will be allowed to stabilize at 248±25°F before each sample run. After the desired operating conditions are coordinated with the facility, testing will begin.

Stack parameters (e.g., flue velocity, temperature) will be monitored to establish the isokinetic sampling rate within ±10% for the duration of the test.

At the conclusion of a test run and the post-test leak check, the sampling train will be disassembled and the condenser, XAD-2 Trap, impingers, and filter will be transported to the recovery area. The XAD-2 Trap will be removed from the sampling train, tightly capped at both ends, labeled, covered with aluminum foil, and stored in an iced cooler to be transported to the laboratory. The filter will be recovered using Teflon-lined tweezers and placed in a Petri dish. The Petri dish will be immediately labeled and sealed. The nozzle, probe, filter housing, and condenser will be brushed and triple-rinsed with acetone, hexane, and methylene chloride, which will be collected in a pre-cleaned sample container.

At the end of a test run, the liquid volume collected in each impinger, including the silica gel, will be weighed. These volumes will be used to calculate moisture content of the flue gas. The impingers will then be triple-rinsed with acetone, hexane, and methylene chloride, which will be collected in a pre-cleaned sample container. The sample containers will be transported to Enthalpy Analytical in Durham, North Carolina for analysis. The laboratory analytical results will be included in the final report.

6.2 Process Data

The following parameters will be recorded by Alco personnel during the testing and will be included in the compliance test report.

- Amount of asphalt roofing product manufactured (ton)

7.0 QA/QC Activities

7.1 QC Procedures

Quality assurance/quality control (QA/QC) procedures will be conducted onsite to validate the test data in accordance with USEPA procedures. Example QA/QC field sheets for the USEPA methods proposed for this emissions test program are presented below.

APEX

USEPA Method 1
Sampling and Velocity Traverse Point Determination

Plant Name: ____________
City, State: ____________
Sampling Location: ____________

Number of Ports Available: ____________
Number of Ports Used: ____________
Port Inside Diameter: ____________

Distance from Far Wall to Outside of Port: ____________
Nipple Length and/or Wall Thickness: ____________
Depth of Stack or Duct: ____________
Stack or Duct Width (if Rectangular): ____________

Equivalent Diameter:

$$D_E = \frac{2 \text{ x depth x width}}{\text{depth + width}} = \frac{2 \text{ x } (\quad) \text{ x } (\quad)}{(\quad) + (\quad)} = \_\_\_\_\_\_$$

Distance from Ports to Flow Disturbances:	Upstream	Downstream
	______	______
Diameters:	______	______

Stack/Duct Area= ________ = ________ in^2
(must be > 113 in^2)

Draw horizontal line through diameters
If more than 8 and 2 diameters and if duct diameter is 12 - 24 in, use 8 or 9 points

Velocity | Particulate

Diameters
Up Down
8 — 2.0
7 — 1.75
6 — 1.5
5 — 1.25
2 — 0.5

Velocity: 12, 16
Particulate: 12, 16, 20, 24

Point	% of Duct Depth	Distance From Inside Wall	Distance from Outside of Port
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

Location of Points in Circular Stacks or Ducts

	4	6	8	10	12
1	6.7	4.4	3.2	2.6	2.1
2	25.0	14.6	10.5	8.2	6.7
3	75.0	29.6	19.4	14.6	11.8
4	93.3	70.4	32.3	22.6	17.7
5		85.4	67.7	34.2	25.0
6		95.6	80.6	65.8	35.6
7			89.5	77.4	64.4
8			96.8	85.4	75.0
9				91.8	82.3
10				97.4	88.2
11					93.3
12					97.9

Location of Points in Rectangular Stacks or Ducts

	3	4	5
1	16.7	12.5	10.0
2	50.0	37.5	30.0
3	83.3	62.5	50.0
4		87.5	70.0
5			90.0

Do not place points closer to stack walls than:
1.0 in for stack diameter > 24 in
0.5 in for stack diameter 12 to < 24 in

For rectangular stacks, use only the following matrices:

No. Pts	Matrix
9	3 x 3
12	4 x 3
16	4 x 4
25	5 x 5

Checked for completeness: ____________
Checked by (signature): ____________

Figure 7-1. USEPA Method 1 Sampling Location Form

APEX COMPANIES, LLC
PITOT TUBE INSPECTION

PITOT TUBE NO. ______________

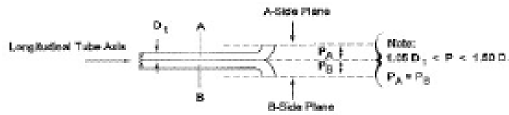
DATE ______________

Pitot Tube not on Probe | Operator: ______________

$3/16 \le Dt \le 3/8$ | YES NO

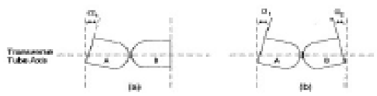
0.48 cm 0.95 cm

$P_A = P_B$ | YES NO

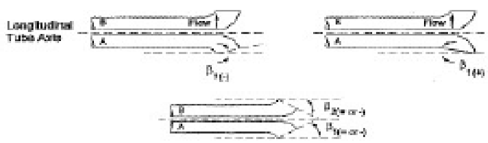


$1.05\ Dt \le P_{A,B} \le 1.5\ Dt$ | YES NO

α_1 and $\alpha_2 < 10°$ | α YES NO



β_1 and $\beta_2 < 5°$ | β YES NO



z < 0.32 cm (1/8 in) | z YES NO

w < 0.08 cm (1/32 in) | w YES NO

Pitot on Probe

Component Spacing OK

Pitot Tube Correction Factor: ______________

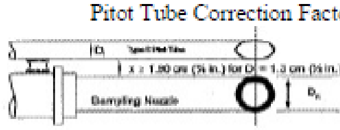


Fig. A

Fig.		
A.	$x \ge 1.9$ cm	A. YES NO
B-1.	$z \ge 1.9$ cm $w \ge 7.62$ cm	B-1. YES NO
or		
B-2.	$z \ge 5.08$ cm	B-2. YES NO
C.	$Y \ge 7.62$ cm	C. YES NO

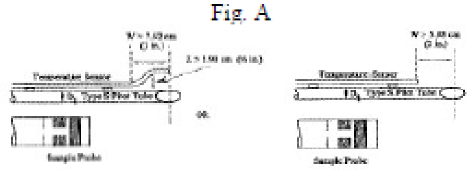


Fig. B-1 Fig. B-2

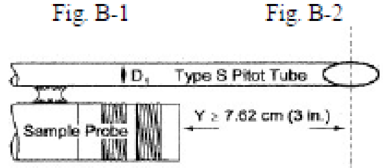


Fig. C

Figure 7-2. USEPA Method 2 Pitot Tube Inspection Form

Run

Date

Facility

Time

Source Designation

Operator

Filter No.

Barometric Pressure (P_b) in Hg

Stack Static Pressure (P_s) in H_2O

Stack Dimensions (Diameter) in

Pitot Tube

Meter No.

ΔH at 0.75 cfm

Assumed Moisture (B_{ws})

Nozzle Diameter in

Leak Rate Initial ft^3/min at in Hg

Leak Rate Final ft^3/min at in Hg

Traverse Points

Pitot Correction Factor (C_p)

Meter Correction Factor (Y)

Gas Composition CO_2 %

O_2 %

Comment

Traverse Point	Sampling Time		Sampling Train Vacuum (in Hg)	Stack Temp. T_s (°F)	Velocity Press. ΔP_s (in H_2O)	Orifice Differential, ΔH (in H_2O)	Sample Volume V_m (ft^3)	Dry-Gas Meter Temp.		Probe Temperature (°F)	Filter Box Temperature (°F)	Last Impinger Temperature (°F)	Auxilary Temperature (°F)
	(minute)	Clock Time (24 hour)						Inlet, T_m (°F)	Outlet, T_m (°F)				

Figure 7-3. Sample Train Data Sheet

Moisture Recovery Form for Method 5

Plant	
Date	
Sampling Location	
Run Number	
Impinger Box Number	
Recovery Person	
Recovery Rinses	Not applicable
Sampling Identification	
Filter Number	

Impinger Number	Impinger Solution	Amount of Solution (g)	Impinger Tip Configuration	Impinger Weight Final (g)	Impinger Weight Initial (g)	Impinger Weight Weight Gain (g)
1	Water	100	Modified			
2	Water	100	Greenburg-Smith			
3	Empty	0	Modified			
4	Silica Gel	~300	Modified			
					Total Weight Gain (g)	

Figure 7-4. USEPA Method 5A Recovery Sheet

Moisture Recovery Form for CARB 429

Plant	
Date	
Sampling Location	
Run Number	
Impinger Box Number	
Recovery Person	
Recovery Rinses	3 x Acetone, Hexane, Methylene Chloride
Sampling Identification	
Filter Number	

Impinger Number	Impinger Solution	Amount of Solution (g)	Impinger Tip Configuration	Impinger Weight		
				Final (g)	Initial (g)	Weight Gain (g)
1	3 mM $NaHCO_3$ 2.4 mM Na_2CO_3	100	Greenburg-Smith			
2	3 mM $NaHCO_3$ 2.4 mM Na_2CO_3	100	Greenburg-Smith			
3	Empty	0	Modified			
4	Silica Gel	~300	Modified			
					Total Weight Gain (g)	

Figure 7-5. CARB Method 429 Recovery Sheet

7.2 QA Audits

Quality assurance audit samples are not proposed during this test program. On September 11, 2019, the audit sample program was suspended by USEPA until further notice. Onsite QA/QC procedures including Pitot tube inspections, system leak checks, analyzer system bias and drift checks will be performed in accordance with the respective USEPA sampling methods.

Offsite QA/QC audits will include dry-gas meter and thermocouple calibrations.

7.3 QA/QC Checks for Data Reduction and Validation

The emissions testing Project Manager and/or the QA/QC Officer will validate computer spreadsheets. The computer spreadsheets will be used to ensure that field calculations are accurate. Random inspection of the field data sheets will be conducted to verify data have been recorded appropriately. At the completion of a test, the raw field data will be entered into computer spreadsheets to provide applicable onsite emissions calculations. The computer data will be checked against the raw field sheets for accuracy during review of the report.

7.4 Sample Identification and Custody

The Apex project manager will be responsible for the handling and procurement of the data collected in the field. The project manager will ensure the data sheets are accounted for and completed in their entirety. USEPA Method 5A analytical procedures are applicable to this test program. Applicable Chain of Custody procedures will follow guidelines outlined within ASTM D4840-99 (Reapproved 2010), "Standard Guide for Sample Chain-of-Custody Procedures." Detailed sampling and recovery procedures are described in Section 6.0. For each sample collected (i.e., impinger), sample identification and custody procedures will be completed as follows:

- Containers will be sealed to prevent contamination.
- Containers will be labeled with test number, location, and test date.
- The level of fluid will be marked on the outside of the sample containers to indicate if leakage occurs prior to receipt of the samples by the laboratory.
- Containers will be placed in a cooler for storage, if necessary.
- Samples will be logged using guidelines outlined in ASTM D4840-99 (Reapproved 2010).
- Samples will be transported to the laboratory under chain of custody.

Chains of custody and laboratory analytical results will be included in the test report.

8.0 Reporting and Data Reduction Requirements

8.1 Report Format

The report format will follow USEPA guidelines for emissions test reporting. The report will incorporate the elements of the table of contents in Figure 8-1.

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5.0 QA/QC Activities X

APPENDICES

- A - Results and Calculations
- B - Raw Field Data and Calibration Data Sheets
- C - Sampling Log and Chain-of-Custody Records
- D - Analytical Data Sheets
- E - Audit Data Sheets
- F - List of Participants
- G - Additional Information

Figure 8-1. Example Report Table of Contents

The final report will be submitted to the agency within 60 days after the last day of testing.

8.2 Data Reduction and Summary

Data reduction will be completed and audited through sample calculations. Results tables will summarize the data and present emission concentrations and rates.

9.0 Plant Entry and Safety

9.1 Safety Responsibilities

Alco personnel will be responsible for ensuring compliance with plant, entry, health, and safety requirements.

9.2 Safety Program

Apex has a comprehensive health and safety program that includes (1) written policies and procedures, (2) routine training of employees and supervisors, (3) medical monitoring, (4) use of personal protection equipment, (5) hazard communication, (6) pre-mobilization meetings with Alco personnel, and (7) routine surveillance of the ongoing work.

9.3 Safety Requirements

Apex personnel will adhere to the following standard safety and precautionary measures:

- Confine selves to test area only.
- Use required PPE, including, but not limited to, hard hats, safety glasses, and steel-toed boots.

Alco personnel will provide additional personal protective equipment, if needed, and emergency response procedures to all visitors.

10.0 **Personnel Responsibilities and Test Schedule**

10.1 Test Site Organization

The key tasks and task leaders are:

- Test Preparation: David Kawasaki
- Modification to Facility/Services: Alco
- Sampling Site Accessibility: Alco
- Daily Sampling Schedule: David Kawasaki and Alco

10.2 Test Preparations

Test preparations have been initiated by Alco and Apex.

10.2.1 Modification or Construction of Equipment for Facility Testing

Alco will build a temporary total enclosure surrounding each coater line, to be used during sampling. The TTE will meet USEPA Method 204 requirements. The facility will ensure appropriate sampling ports and safe access are provided.

10.2.2 Services Provided by Facility

Alco will provide electrical power and safe access to sampling locations.

10.3 Test Personnel Responsibilities and Detailed Schedule

Testing personnel will arrive at the plant one day prior to the start of the first day of testing and approximately 2 hours prior to the first test on the subsequent test day. On test days, Apex will:

- Meet with Alco personnel to review the daily test objectives.
- Prepare and set-up equipment including QA/QC checks.
- Calibrate analyzers and evaluate whether the data acquisition systems are functioning properly.
- Establish communication links between team members, leaders, and plant personnel.

Table 10-1 lists the test personnel and their specific responsibilities. Table 10-2 presents the detailed test schedule.

Table 10-1
Test Personnel and Responsibilities

	Staff Assignment	Responsibility
1.	Project Manager	Coordinate and monitor testing activities. Assist with measurements. Record and review data. Evaluate that field data sheets are completed in their entirety. Maintain communication between test participants, plant personnel, and Alco. Coordinate with facility and testing personnel at the start of testing.
2.	Consultant	Prepare sample trains. Monitor sampling trains during the test runs. Record data and complete necessary sampling.

Table 10-2
Tentatively Proposed Emissions Test Schedule

Staff Assignment	Activity
Day 1, Setup	
1 and 2	Travel to site, setup equipment at Line 1 Coater, safety orientation, conduct preliminary measurements, and perform pre-test calculations.
1	Contact Alco to establish communication, review process monitoring, review test protocol.
Day 2, Testing	
1	Coordinate testing with Alco. Resolve equipment/sampling issues, if any.
1 and 2	Conduct air emissions testing at Line 1 Coater: -Two 150-minute test runs for PM, PAH
Day 3, Testing	
1	Coordinate testing with Alco. Resolve equipment/sampling issues, if any.
1 and 2	Conduct air emissions testing at Line 1 Coater: -One 150-minute test run for PM, PAH Conduct air emissions testing at Line 2 Coater: -One 150-minute test run for PM, PAH
Day 4, Testing	
1	Coordinate testing with Alco. Resolve equipment/sampling issues, if any.
1 and 2	Conduct air emissions testing at Line 2 Coater: -Two 150-minute test runs for PM, PAH
Day 5, Visible Emissions	
2	Conduct monitoring at Black Mag Silo and Sand Silo: -Three 30-minute test runs for visible emissions during loading.

11.0 **Limitations**

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Submitted by:

Apex Companies, LLC

David Kawasaki, QSTI
Senior Engineer
Apex Companies, LLC
david.kawasaki@apexcos.com
248.590.5134

Derek R. Wong, Ph.D., P.E.
National Account Manager
Apex Companies, LLC
derek.wong@apexcos.com
248.875.7581